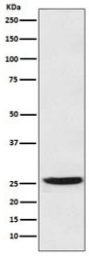
15-PGDH Antibody / HPGD [clone AEFF-8] (RQ5486)

Catalog No.	Formulation	Size
RQ5486	Antibody in PBS with 0.02% sodium azide, 50% glycerol and 0.4-0.5mg/ml BSA	100 ul

Bulk quote request

Availability	1-2 weeks
Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	AEFF-8
Purity	Affinity purified
UniProt	P15428
Applications	Western Blot : 1:500-1:2000
Limitations	This 15-PGDH antibody is available for research use only.



Western blot testing of human SW480 cell lysate with 15-PGDH antibody. A strong band was detected at approximately 26 kDa, which is slightly lower than the predicted 29 kDa but consistent with the known migration behavior of HPGD reported in the literature.

Description

The 15-PGDH antibody / HPGD antibody detects 15-hydroxyprostaglandin dehydrogenase, an oxidoreductase that serves as a major catabolic enzyme in prostaglandin metabolism. The UniProt recommended name is Prostaglandin reductase 1, and it is encoded by the HPGD gene located on chromosome 4q34.1. This enzyme is primarily localized to the cytosol but can also associate with perinuclear regions depending on cell type. As a member of the short-chain dehydrogenase reductase family, 15-PGDH plays an essential role in controlling prostaglandin signaling intensity and duration, influencing inflammation, vascular tone, tissue repair, reproductive physiology, and cellular differentiation.

15-PGDH catalyzes the oxidation of the 15-hydroxyl group of prostaglandins, converting bioactive eicosanoids such as PGE2, PGF2, and PGD2 into their inactive 15-keto forms. This reaction is NAD-dependent and represents the first committed step in the prostaglandin degradation pathway. Through this mechanism, 15-PGDH provides a counter-regulatory function balancing cyclooxygenase-driven prostaglandin synthesis. Its abundance and activity levels directly modulate the magnitude of prostaglandin-mediated signaling in tissues undergoing inflammatory responses, injury repair, or hormonal adaptation.

Expression of 15-PGDH occurs in a broad range of tissues, including lung, colon, stomach, liver, kidney, placenta, and various epithelial and stromal compartments. Its expression is context-dependent and can be upregulated by certain differentiation signals while suppressed by inflammatory cytokines, growth factors, or oncogenic cues. Developmentally, 15-PGDH participates in epithelial maturation, vasculature patterning, and hormonal tissue remodeling. In barrier tissues such as the gastrointestinal tract and respiratory epithelium, 15-PGDH helps maintain homeostasis by preventing excessive prostaglandin accumulation.

Dysregulation of 15-PGDH contributes to several human diseases. Reduced expression has been reported in multiple cancers including colorectal, gastric, lung, breast, pancreatic, and prostate malignancies. Loss of 15-PGDH activity elevates local prostaglandin levels, enhancing cell survival, angiogenesis, immune modulation, and tumor-promoting inflammation. In contrast, high expression supports anti-inflammatory and tumor-suppressive environments. Variants in HPGD can cause metabolic disorders affecting prostaglandin clearance, leading to conditions characterized by prolonged prostaglandin signaling. Abnormal regulation also contributes to inflammatory diseases such as colitis, chronic gastritis, rheumatoid arthritis, and airway hyperresponsiveness.

At the pathway level, 15-PGDH intersects with COX-1 and COX-2 signaling, cytokine networks, hypoxia-driven transcription factors, and growth factor pathways influencing epithelial turnover and stromal remodeling. Its intracellular partners include redox-associated enzymes, cytosolic chaperones, and metabolic regulators that coordinate prostaglandin turnover with broader cellular functions. Through these interactions, 15-PGDH plays a significant role in shaping local tissue microenvironments, influencing immune cell recruitment, fibrosis, angiogenic balance, and responses to cellular stress.

The 15-PGDH antibody / HPGD antibody can be used in immunohistochemistry, western blot, or other research assays to examine enzyme distribution, prostaglandin catabolism, inflammation-associated remodeling, and tumor biology. These general applications support studies in epithelial homeostasis, metabolic regulation, immune signaling, and cancer progression. NSJ Bioreagents provides the 15-PGDH antibody / HPGD antibody for research use in investigations involving prostaglandin metabolism and tissue signaling dynamics.

Application Notes

Optimal dilution of the 15-PGDH antibody should be determined by the researcher.

Immunogen

A synthetic peptide specific to human 15 PGDH / HPGD was used as the immunogen for the 15-PGDH antibody.

Storage

Store the 15-PGDH antibody at -20oC.